

SOURCE
NOTE

Topic not in uploaded personal notes. Content compiled from FDA/EPA 2024 Advice on Eating Fish, ACOG Committee Opinion, Saunders NCLEX-RN Review, and Lippincott Maternity Nursing.

MATERNITY / OB

PRENATAL NUTRITION

CLIENT EDUCATION

HIGH-YIELD

Mercury in Pregnancy — *safe fish, smart choices*

Methylmercury crosses the placenta and concentrates in the fetal brain. Teaching the pregnant client which fish to **choose**, which to **limit**, and which to **avoid** is a core NCLEX 2026 prenatal nutrition competency.

1 Definition & Overview

WHY IT MATTERS

Mercury is a heavy metal that bioaccumulates in fish. The form found in fish — **methylmercury** — is the most toxic to the developing fetus.

- ▶ **Crosses the placenta freely** and concentrates in fetal blood at **1.7× higher** than maternal blood.
- ▶ **Targets the developing CNS** — fetal brain & nervous system are most vulnerable in the 1st and 2nd trimesters.
- ▶ **Fish is still recommended** in pregnancy — omega-3s (DHA/EPA) support fetal brain & eye development. Goal: **2–3 servings (8–12 oz) of low-mercury fish per week**.
- ▶ The risk is *not* fish itself — the risk is choosing the **wrong fish**.

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Pathophysiology

MERCURY → FETUS

Mercury in water is converted by bacteria into **methylmercury**, which moves up the food chain. The biggest, oldest, most predatory fish carry the highest doses.

STEP 1

Source

Industrial & natural mercury enters waterways.

STEP 2

Methylation

Bacteria convert mercury → *methylmercury* (organic, fat-soluble).

STEP 3

Bioaccumulation

Big predator fish eat smaller fish — mercury concentrates with each step up the chain.

STEP 4

Maternal Intake

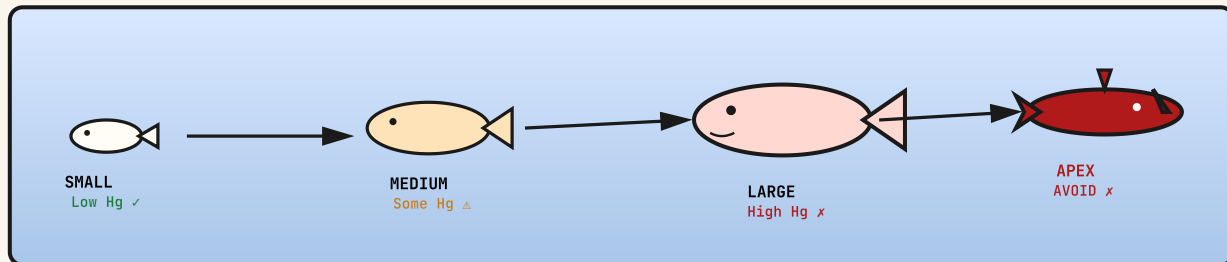
Pregnant client eats fish → methylmercury absorbed by GI tract → bloodstream.

STEP 5

Fetal Injury

Crosses placenta & blood-brain barrier → binds fetal CNS tissue → impairs neuron migration.

Mercury Bioaccumulation in the Food Chain



BIGGER + OLDER + MORE PREDATORY = MORE MERCURY

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Signs & Symptoms

MATERNAL VS. FETAL



Maternal Toxicity

EARLY / MILD

- ▶ Numbness & tingling — lips, fingers, toes (paresthesia)
- ▶ Headache, fatigue, irritability
- ▶ Mild tremor of hands
- ▶ Memory & concentration changes

LATE / SEVERE

- ▶ Ataxia / unsteady gait
- ▶ Slurred speech (dysarthria)
- ▶ Vision changes — tunnel vision, blurred
- ▶ Hearing loss



Fetal / Infant Effects

OFTEN NO MATERNAL SYMPTOMS — DAMAGE STILL OCCURS

- ▶ **Neurodevelopmental delay** — cognitive, language, motor
- ▶ Cerebral palsy–like symptoms
- ▶ Intellectual disability
- ▶ Microcephaly (smaller–than–normal head)
- ▶ Visual & hearing deficits
- ▶ Poor coordination, delayed walking/talking

RED FLAG

A pregnant client reporting **numbness, tingling, tremor, or vision changes** with a diet history of **frequent canned tuna, shark, swordfish, or tilefish** warrants immediate provider notification & blood/urine mercury screening.

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Priority Nursing Interventions

ABCS + SAFETY + EDUCATION

A

ASSESS

- Dietary recall — fish type, frequency, portion size
- Gestational age (1st/2nd tri = highest risk)
- Neuro symptoms (paresthesia, tremor)
- Occupational exposure (dentistry, mining)

B

BEST CHOICES

- Promote 2–3 servings (8–12 oz)/wk of LOW–mercury fish
- Reinforce omega–3 benefit for fetal brain
- Offer prenatal DHA supplement if fish refused

C

COUNSEL / EDUCATE

- Teach FDA "Best, Good, Avoid" categories
- Read labels — variety matters
- Apply same rules during breastfeeding
- Apply rules to children under 12

D

DOCUMENT & REFER

- Notify provider for suspected toxicity
- Lab: blood & urine mercury level
- Refer to dietitian if intake unclear
- Document teaching & client understanding

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The Fish Guide — Best, Good, Avoid

✓ BEST CHOICES — 2-3 SERVINGS/WEEK (8-12 OZ)

SAFE ✓

Salmon

2-3 servings / week

- High in omega-3 (DHA)
- Excellent first choice
- Wild & farmed both safe

SAFE ✓

Shrimp

2-3 servings / week

- Very low mercury
- Cook fully (no raw)

SAFE ✓

Canned Light Tuna

2-3 servings / week

- "Light" = skipjack (low Hg)
- NOT albacore/white

SAFE ✓

Sardines

2-3 servings / week

- Tiny fish = low Hg
- Loaded with omega-3 & calcium

SAFE ✓

Tilapia / Catfish

2-3 servings / week

- Farmed, short lifespan
- Very low mercury

SAFE ✓

Cod / Pollock

2-3 servings / week

- Lean, mild, low Hg
- Pollock = fish sticks/sandwiches

SAFE ✓

Scallops / Crab

2-3 servings / week

- Shellfish — very low Hg
- Cook fully

SAFE ✓

Anchovies

2-3 servings / week

- Smallest fish, lowest Hg
- High omega-3

SAFE ✓

Trout (Freshwater)

2-3 servings / week

- Farmed trout safest
- Check local advisories

△ GOOD CHOICES — 1 SERVING/WEEK ONLY

LIMIT △

Albacore / White Tuna

≤ 1 serving (≤ 6 oz) / week

- Bigger than light tuna = more Hg
- Check the can label!

LIMIT △

Yellowfin Tuna

≤ 1 serving / week

- Common in sushi/poke
- Moderate Hg

LIMIT △

Halibut

≤ 1 serving / week

- Large flatfish
- Moderate Hg

LIMIT △

Mahi-Mahi

≤ 1 serving / week

- Moderate Hg

LIMIT △

Snapper / Grouper

≤ 1 serving / week

- Long-lived reef fish

LIMIT △

Sea Bass / Bluefish

≤ 1 serving / week

- Moderate Hg

✗ AVOID COMPLETELY — HIGHEST MERCURY

AVOID ✗

Shark

AVOID ✗

Swordfish

AVOID ✗

King Mackerel

DO NOT EAT

- Apex predator
- Highest mercury class

DO NOT EAT

- Large, predatory
- Very high mercury

DO NOT EAT

- NOT Atlantic/Spanish mackerel (those are safe)

AVOID x

Tilefish (Gulf of Mexico)

DO NOT EAT

- Highest measured mercury

AVOID x

Bigeye Tuna

DO NOT EAT

- Sushi grade — frequently used in sashimi

AVOID x

Marlin / Orange Roughy

DO NOT EAT

- Long-lived deep-water fish

6 NCLEX Test Traps

WHAT STUDENTS MISS

Pregnant client says: "I love tuna sandwiches — I can keep eating those, right?"

✗ **WRONG**

"Yes, tuna is fine — eat as much as you want."

✓ **RIGHT**

"Canned **light** tuna is safe 2–3×/week. **Albacore (white) tuna** must be limited to **6 oz/week**."

Client asks if she should stop eating fish entirely.

✗ **WRONG**

"Yes, stop all fish for the rest of pregnancy."

✓ **RIGHT**

"Fish is recommended — the omega-3s (DHA) support fetal brain development. Choose **low-mercury** options 2–3×/week."

"All mackerel is dangerous, right?"

✗ **WRONG**

Assume all mackerel = unsafe.

✓ **RIGHT**

Only **King Mackerel** is high mercury. **Atlantic and Spanish mackerel are safe** — read carefully.

Client is now breastfeeding — does the rule still apply?

✗ **WRONG**

"Once baby is born you can eat anything."

✓ **RIGHT**

Same guidelines apply during **breastfeeding** — methylmercury passes into breast milk. Also applies to **children under 12**.

*Question asks for the **FIRST** sign of maternal mercury toxicity.*

✗ **WRONG**

Select "ataxia" or "vision loss" (those are **LATE**).

✓ **RIGHT**

Select **paresthesia (numbness/tingling)** — earliest neuro sign of methylmercury toxicity.

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Patient & Family Education

TEACH-BACK TOPICS



Diet & Cooking

- ▶ **Variety matters** — don't eat the same fish every week.
- ▶ **1 serving = 4 oz cooked** (size of palm/deck of cards).
- ▶ Avoid **raw fish/sushi** — Listeria/parasite risk in addition to mercury.
- ▶ Trim fat & skin from local-caught fish — reduces other toxin exposure.
- ▶ Check **local fish advisories** before eating fish from lakes/streams.



Family & Lifestyle

- ▶ Rules apply if **trying to conceive**, pregnant, or **breastfeeding**.
- ▶ Children <12 = smaller portions (1–2 oz per serving).
- ▶ Other mercury sources: **broken thermometers, CFL bulbs, old dental amalgam work** — don't handle broken devices.
- ▶ Take prescribed **prenatal vitamin with DHA** if fish intake is low.
- ▶ Report numbness, tremor, or vision changes **promptly**.

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Memory Boosters

MNEMONICS & TRICKS

STOMB

THE 5 FISH TO AVOID

S — Shark

T — Tilefish (Gulf of Mexico)

O — Orange Roughy

M — Marlin & King Mackerel

B — Bigeye Tuna & swordBill (Swordfish)

SAFE

PATTERN RECOGNITION FOR SAFE FISH

Small fish (sardines, anchovies)

Aquaculture/farmed (tilapia, catfish, trout)

Fast-growing & short-lived (salmon, pollock)

Eat "Light" tuna, not white/albacore

2 × 3 × 12

THE SERVING RULE

2 to 3 servings per week

= **8-12 oz total** of low-mercury fish

Albacore: cap at **6 oz/week**

Avoid fish: **0 oz**

**"BIG & OLD = Avoid
the LOAD"**

BIOACCUMULATION RULE

BIG fish = predators at top of food chain

OLD fish = long lifespan = more accumulation

LOAD = mercury body burden

Choose **small + young + farmed**

9 NCJMM Clinical Judgment Scenario

6-STEP WALKTHROUGH

SCENARIO

A

26-year-old G2P1 client at 14 weeks gestation

presents for her routine prenatal visit. During the dietary review, she reports: "I eat a tuna salad sandwich every day at work for lunch — usually albacore from a can — and my husband and I have sushi twice a week, mostly tuna sashimi and swordfish. I've been having tingling in my fingertips for about 2 weeks." Vital signs are stable. Fundal height is appropriate. Fetal heart tones 148 bpm.

STEP 1 • RECOGNIZE CUES

What stands out?

- Daily **albacore** tuna (high cap = 6 oz/week, she's at ~30+ oz)
- **Swordfish** sashimi = AVOID list
- **Bigeye tuna** sashimi likely = AVOID list
- **Paresthesia × 2 weeks** — earliest sign of methylmercury toxicity
- 14 weeks = peak fetal neuro development

STEP 2 • ANALYZE CUES

What do they mean together?

Cumulative high-mercury intake + new-onset neuro symptom + critical window of fetal CNS development = **probable methylmercury toxicity with active fetal exposure.**

Sushi adds Listeria/parasite risk on top of mercury concern.

STEP 3 • PRIORITIZE HYPOTHESES

What's most urgent?

- #1 **Highest priority:** Methylmercury toxicity affecting maternal nervous system AND fetal neurodevelopment.
- #2 Listeria/parasite risk from raw fish.
- #3 Need for nutrition replanning to preserve omega-3 intake without mercury exposure.

STEP 4 • GENERATE SOLUTIONS

What actions are appropriate?

- Notify provider — order **serum & urine mercury level**
- Stop all high-mercury fish immediately
- Stop raw fish (sushi/sashimi)
- Detailed dietary teaching using FDA/EPA categories
- Refer to dietitian / consider prenatal DHA supplement
- Document neuro baseline; schedule follow-up

STEP 5 • TAKE ACTION

The nurse:

- Notifies the OB provider of paresthesia + dietary history
- Obtains ordered labs (Hg level)
- Provides written FDA "Best Choices" handout
- Confirms understanding via teach-back: client lists 3 fish to avoid & 3 safe choices
- Schedules return visit in 2 weeks for follow-up

STEP 6 • EVALUATE OUTCOMES

What indicates success?

- Mercury level trends downward at follow-up
- Paresthesia resolves or improves
- Client correctly identifies safe vs. avoid fish
- Client demonstrates 2–3 low-Hg servings/week without exceeding limits
- Fetal growth & development remain on track per US/biometry